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IN THE APPLICATION  
OF  
PHILIP S. PHILLIPS  
FOR A  
GOLF TRAINING AID

GOLF TRAINING AID

BACKGROUND OF THE INVENTION

1. FIELD OF THE INVENTION

5 The present invention relates to sports training aids. More particularly, the present invention relates to golf training aids attachable to a golf club shaft which add air resistance to the swing.

2. DESCRIPTION OF THE RELATED ART

10 The game of golf is a popular and growing sport requiring considerable skill to play well. Also, better results are achieved when hitting the golf ball for distance if the muscles used during the swing are strengthened and trained. Many devices are available to aid in practicing a swing in order to keep the swing in the desired line. An important aspect of the swing is  
15 the "release" point where the energy stored in the backswing and the cocking of the wrists is released during the process of hitting the ball with the club. The "release" point, i.e., the breaking or uncocking of the wrists should occur just before ball contact with the club in order to obtain maximum club head speed  
20 and creating maximum power for long ball hitting. The proper release point is also important in the process of hitting the

ball correctly to avoid hook, slice, and other miss-hits of the ball with the club head.

It has been discovered that adding air resistance to a club along its shaft accentuates the effort exerted at the release point of the swing, allowing the golfer to more easily recognize the release point of his swing and adjust it accordingly. The repeated swinging of the club with the added air resistance helps train the golfer to release at the appropriate point of his swing. The effect of repeated swinging is to strengthen and teach the lead side muscles and promote "muscle memory" for the release point. Also, the weight of the unit, when removed, would make the club feel lighter, resulting in the golfer feeling more confident in executing his swing for long hitting. It would be desirable to provide a golf training device which may easily be mounted, dismounted and carried during a round of golf which provides wind resistance and weight as described above, allowing the golfer to practice swings with particular clubs used during the round. The training device would also have varying degrees of wind resistance for various skill levels and different clubs. The training device should be capable of secure mounting to avoid turning on the shaft while avoiding damage to the shaft through undue compression, allowing the shaft to flex naturally during the swing.

device having a plurality of vanes extending lengthwise of the shaft.

U.S. Patent No. 5,310,188, issued May 10, 1994, to Hernberg, describes a golf club swing alignment device having finned members that is secured along the shaft of a conventional golf club adjacent the head. The fins provide wind resistance during the swing.

U.S. Patent No. 5,571,048, issued November 5, 1996, to Kenney, describes a golf swing practice device having a plurality of plastic rigid airfoil wings which are attached to a golf shaft just above the head. The wings provide air resistance during the swinging of the golf club while training the user in proper rotation of the club during the swing.

U.S. Patent No. 6,238,299 B1, issued May 29, 2001, to Barnette describes a golf training air resistance device which attaches along the length of a golf club and describes how it is manipulated to fit all standard shaft diameters.

None of the above inventions and patents, taken either singly or in combination, is seen to describe the instant invention as claimed. Thus a golf training aid solving the aforementioned problems is desired.

#### SUMMARY OF THE INVENTION

The foldable, air-resistance golf training aid of the present invention includes an elongated flexible hub of rubber or similar material being stretchable between a rectangular configuration for transport and storage and a generally cylindrical configuration wrapping around a golf club shaft. The flexible hub in the cylindrical wrapped configuration has a plurality of parallel, paddle-shaped vanes spaced around and extending radially outward from the hub along the substantial length thereof. The flexible hub assumes the rectangular folded configuration at rest with the vanes parallel to each other to form a compact unit for carrying and storage in a golf bag during a round of golf. The hub in the rectangular configuration has upper and lower ends and parallel sides.

The vanes are preferably inserted into spaced, parallel retaining slots cut lengthwise through the outer surface of the hub, spaced between the parallel sides and extending inward about two-thirds of the hub thickness toward the inner side of the hub. The vanes are preferably of clear plastic of about 1/16 inch thickness, having a straight edge fitting into its respective slot in the hub and a rounded form similar to the end portion of a paddle.

The hub preferably has five slots spaced at 1/8 inch intervals receiving an outer pair of vanes spaced inward, respectively, from the sides of the hub, an intermediate pair of vanes spaced inward respectively from the outer pair of vanes, and a center pair of vanes, preferably sharing a single center groove. The vanes are retained in the respective grooves by

mounting with adhesive to the wall of each groove closest to the nearest sidewall, the center pair of vanes being mounted on opposite walls of the center groove, respectively. At least one fastener is attached between the outer pair of vanes, preferably a strap of loop material glued to one vane and a hook material patch on the other vane, to detachably hold the vanes together in the stored position. The hook and loop material is available under the name VELCRO.

The hub is mounted on the golf club shaft for use by wrapping it lengthwise around the shaft forming a tubular or cylindrical hub, the vanes extending radially outward from the hub. The outer pair of vanes is then adjustably attached by a fastener such as a strap. It is convenient to use a double-sided strap of loop material mounted to one of the outer pair of vanes to serve as the storage fastener and the attachment fastener, and corresponding hook material patches mounted on opposed sides of the other outer vane receiving the strap for detachable, adjustable mounting. Extension paddles may be attached to the vanes as desired by axle rivets so the paddles may be rotated from a closed position conforming with the vane and an open position extending outward and upward from the vane to provide the golf training aid with increased and variable air-resistance capability.

It is an aspect of the invention to include improved elements and arrangements thereof for the purposes described which is inexpensive, dependable and fully effective in accomplishing its intended purposes.

These and other aspects of the present invention will become readily apparent upon further review of the following specification and drawings.

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#### BRIEF DESCRIPTION OF THE DRAWINGS

Fig. 1 is a front elevation view of the golf training aid of the present invention in the folded or stored configuration.

Fig. 2 is a plan view of the golf training aid of Fig. 1.

10 Fig. 3 is a plan view similar to that of Fig. 2, with the strap opened and having extender paddles added.

Fig. 4 is a side elevation view of the golf training aid of Fig. 1.

Fig. 5A is a detail view of a paddle of Fig. 3 showing an extender paddle ( in ghost lines) mounted thereon.

15 Fig. 5B is a detail view of the extender paddle in Fig. 5.

Fig. 6A is a plan view of the golf training aid of Fig. 3 in the cylindrical, wrapped configuration with paddle extenders.

Fig. 6B is a plan view of the golf training aid of Fig. 1 in the cylindrical, wrapped configuration.

20 Fig. 7 is a plan view of the golf training aid of Fig. 1 in a partially wrapped configuration.

Fig. 8 is an environmental perspective view of the golf training aid of Fig. 1 mounted on the shaft of a golf club.

Fig. 9A is a front environmental view of the golf training aid of Fig. 3 as mounted on the shaft of an iron with extender

paddles in the fully folded position (center paddle pair deleted).

Fig. 9B is a view similar to that of Fig. 9A having a pair of extender paddles in the extended position.

5 Fig. 9C is a view similar to that of Fig. 9A having two pair of extender paddles in the extended position.

Fig. 9D is a view similar to that of Fig. 9A having one each of two pair of extender paddles in the extended position.

10 Fig. 9E is a view similar to that of Fig. 9D having the other of two extender paddles in the extended position

Fig. 10A is a representation of a golf training aid with a single extender paddle in a fully folded position having a detent in a detent receiver.

15 Fig. 10B is a representation of the golf training aid of Fig. 10A with the single extender paddle partially extended with the detent in a second detent receiver and the detent receiver of the fully folded position revealed.

20 Fig. 10C is a representation of the golf training aid of Fig. 1A with the single extender paddle fully extended with the detent in a third detent receiver and the detent receivers of the fully folded and partially extended positions revealed.

Fig. 11A is a front environmental view similar to that of Fig. 9A of an embodiment having a single pair of extender paddles as shown in a fully folded position.

25 Fig. 11B is a view similar to that of Fig. 11A showing the single pair of extender paddles in an extended position.



Similar reference characters denote corresponding features consistently throughout the attached drawings.

#### DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

5 The present invention is a foldable, air-resistance golf training aid having an elongated flexible hub of rubber or similar material being bendable and stretchable between a rectangular configuration for transport and storage and a generally cylindrical, wrapped configuration fitting around a golf club shaft. The flexible hub has a plurality of parallel,  
10 paddle-shaped vanes spaced around and extending radially from the hub along the substantial length thereof when in the stretched, cylindrical, wrapped configuration. The flexible hub assumes the rectangular folded configuration at rest with the vanes parallel to each other to form a compact unit for carrying and storage in  
15 a golf bag during a round of golf.

Referring to Figs. 1-5B, the inventive golf training aid is shown in its folded configuration for carrying and storage. The golf training aid 10 has a generally vertically oriented hub 12 having an outer surface 14, an inner surface 16, an upper end  
20 wall 18, a lower end wall 20, and parallel side walls 22 and is generally rectangular in shape as shown in its rest configuration. Parallel vanes 24 extend outward from the outer surface 14 of hub 12 and one or more of the vanes 24 may have a logo 28 thereon. The vanes are preferably of a rigid, clear  
25 plastic sheet material about 1/16" in thickness. A plastic

having the desired properties is PETG (Polyethylene Terephthalate Glycol) available from K-mac Plastics, Kentwood, Michigan.

There are preferably six vanes inserted into corresponding grooves cut lengthwise in the outer side of hub 12 and extending into the hub about two-thirds of the thickness thereof. The vanes 24 are of the same size and configuration and are generally shaped like the end portion of a paddle. The vanes include an outer pair 26, an intermediate pair 42 and a center pair 50. Outer vane pair 26 each has straight inner edges 34 and peripheral edges 36 extending therearound, and have outer sides 38 and inner sides 40 (relative to the remainder of the vanes). One each of outer vane pair 26 is mounted in respective outer vane slots 60 (see Fig. 2) and attached by adhesive (not shown) to the outer side of the respective slot. Intermediate vane pair 44 is mounted in intermediate vane slots 62 in a manner similar to that of outer vane pair 26. Inner vane pair 50 is mounted adjacent within a single central slot 64, the vanes being attached by adhesive to respective opposed walls 66 of slot 64. Fastening straps 30 are of loop material and extend between respective upper and lower sides of outer vane pair 26 at a point proximate their entrance into hub 12.

As seen in Fig. 4, fastening straps 30 are made of back-to-back strips including inner loop material strap 32 and outer loop

material strap 33. The inner and outer loop material straps are fastened by adhesive over upper and lower ends of one vane of the outer vane pair 26. The inner and outer loop material straps are then combined and the resulting straps extend around the  
5 respective ends of the training aid 10, the inner loop strap 32 being removably attached to outer hook material patch 86, thus holding the vanes in the closed position. A key ring 31 may be mounted through one of the fastening straps 30 at one end of the training aid 10 for holding items such as keys, beverage openers,  
10 and a spring clip for fastening to a golf bag or cart.

Referring to Fig. 3, there is shown a fastening strap in the open position with key ring 31 attached thereto as fastened around one of outer vane pair 26. The hook material patch 86 is shown in the unattached state on outer surface 38 of the other  
15 vane of vane pair 26. A hook material patch 88 is mounted on the inner surface 40, opposite hook material patch 86 for fastening the strap 30 with the golf training aid 10 in the open position with the hub 12 stretched into the cylindrical, wrapped position around a golf club shaft (see Fig. 8). First extender paddles  
20 74, having straight edges 76 and peripheral edges 78, and second extender paddles 80, having straight edges 82 and peripheral edges 84 are attached to respective vanes of intermediate vane pair 44 by respective rivets 70 having axles 72. The straight

edges of the extender paddles are proximate hub outer surface 14 when in the folded position and may be rotated to extended positions (see Fig. 9C).

5 Referring to Fig. 4, there is shown a side elevation view of the golf training aid of Fig. 1, showing fastening straps 30 in the fastened position at upper end 18 and lower end 20 of the flexible hub 12. The straps 30 are both attached as described above so as to fasten to respective outer hook material patches 86 to maintain the vanes 26 in the closed position. It is noted  
10 that in this embodiment of the invention there are no extender paddles 74 and 80.

Referring to Figs. 5A and 5B, there are shown detail views of the intermediate vane 44, and the first extender paddle 74, respectively. Intermediate vane 44 has a straight inner edge 46  
15 and a peripheral edge 48 and an axle bore 90 for fitting around axle 72. An extender paddle is shown in phantom lines in the folded position on vane 44. First extender paddle 74 is shown in Fig. 5B having a straight inner edge 76 and a peripheral edge 78 and rotatable around axle 72.

20 Referring to Figs. 6A, 6B, and 7, there are shown plan views of the embodiment of Fig. 3 and that of Fig. 4 in the open configuration with the hub 12 stretched and wrapped into the cylindrical configuration, and of a partially opened embodiment of Fig. 4, respectively. As is seen in Fig. 6 A, the outer pair

of vanes 26 has been rotated around the hub 12, stretching the hub into a wrapped, cylindrical configuration with inner edges of the parallel sides 22 touching. A fastening strap 30 holds the outer pair of vanes 26 together. In this configuration the hub 12 would be wrapped around the shaft of a golf club (see Fig. 8). As is seen, the outer vane slots 60, the intermediate vane slots 62 and the center slot 64 expand to form the outer surface of the inner cylinder formed by hub 12..

The center vane pair 50 is spread radially and the individual vanes remain attached to the opposed walls 66 of slot 64. The intermediate vane pair 44 is spread radially from respective center vanes 50, the intermediate slots 62 expanding to form the outer surface of the inner cylinder formed by hub 12. The outer vanes 26 are spread radially from respective intermediate vanes 44, the outer slots 60 expanding to form the outer surface of the inner cylinder formed by hub 12. First extender paddles 74 and second extender paddles 80 are mounted for rotation relative to intermediate vanes 44 by rivets 70 having axles 72. The inner circumference of the hub may be adjusted to snugly fit a particular shaft so as to avoid rotation by adjusting length of fastening strap 30, thereby adjusting tension on the portions of hub 12 bounded by sides 22 and outer vanes 26.

Referring to Fig. 6B, the embodiment of the golf training aid 10 of Fig. 4 without extender paddles is shown in a similar view of that of Fig. 5A. In this view the fastener strap is shown peeled away to show loop material layer 33 and hook material patch 88 of VELCRO which adjustably holds the outer vanes 26 in the desired spaced relationship and thus adjusts wrapping tension on hub 12. The golf training aid 10 may be returned to the folded position as in Fig. 1 by releasing the fastener straps 30 from hook material patches 88, folding the vanes 26, and fastening straps 30 by attaching hook material layers 32 to hook material patches 86.

Referring to Fig. 8, there is shown an environmental perspective view of the inventive golf training aid 10 as mounted on a shaft S of a golf club C having a face F on head H. In the preferred position the golf training aid 10 is mounted on shaft S near the head H for maximum resistance to swing. The resistance to swing may be reduced, if desired, by mounting the golf training aid 10 higher along the shaft S, extending the distance between the aid 10 and the head H. The preferred mounting for aid 10 is illustrated with the center vane pair 50 leading when the club C is swung. The intermediate vanes 44 extend substantially across the line of the swing and outer vanes 26, connected by fastening straps 30, trail the club during the

swing. The hub 12 may be moved up or down the shaft S by releasing tension on fastener strips 30, allowing parallel sides 22 to separate, moving the hub 12 to the desired point on shaft S and then tightening the fastener straps so as to hold the golf swing aid 10 in place during a swing. This procedure also provides for attachment to stepped diameter shafts.

Referring to Figs. 9A-9D, there are shown diagrammatic front elevation views of the inventive golf training of the embodiment of Fig. 4 as mounted on a golf club, having two pairs of extender paddles shown in differing configurations to vary air-resistance during the swing of golf club C. The center vane pairs are not shown to more clearly illustrate the intermediate vane pairs with extender paddles. As seen in Fig. 9A, the flexible hub 12 supports intermediate vane pairs 44 with the extender paddles 80 and 74 (not shown) in the closed position over the vane pairs 44.

Fig. 9B is similar to Fig. 9A where second extension paddles 80 are rotated outward around axle rivets 70, respectively, with the first extender paddles 74 remaining in the closed or retracted position over intermediate vane pair 44. Fig. 9C is similar to Fig. 9B where second extension paddles 80 are fully rotated and first extension paddles 74 are extended outward from intermediate vane pairs 44, this configuration providing the most air-resistance to the swing. Fig. 9D is similar to that of Fig. 9C with only the lower extension paddles 80 and 74 rotated

outward. Fig. 9E is similar to Fig. 9D with only the upper extension paddles 80 and 74 rotated outward around axle rivets 70. The axle rivet 70 preferably holds the extension paddles 80 and 74 and intermediate vanes 44 together sufficiently tightly so that the paddles hold their positions as set by the golfer by friction therebetween.

Fig. 10A-10C are detail views illustrating a first extender paddle 74 held in the closed or retracted position, the partially extended position, and the fully rotated position, respectively, around axle rivet 70 relative to center vane 44. Note the rivet axle 70 is located much closer to flexible hub 12 in this embodiment where only one extender paddle is used relative to the rivet axle 70 on the dual extender paddle embodiment of Figs. 9A-9D, above. Figs. 10A-10C also show illustrate the use of detents 94 and detent receivers 96 to lock first extender paddle 74 in the closed or retracted position, the partially extended position and the fully rotated position, respectively. Similar detents (not shown) may be used with the embodiment of Figs. 9A-9D, detents being used between vane 44 and first extender paddle 74 and between first extender paddle 74 and second extender paddle 80. The flexibility of the plastic paddles and vanes allow for the relative movement of the paddles between detent positions.

Referring to Fig. 11A and 11B, there are shown front elevation views similar to those of Figs. 9A-9D where single extension paddles 74 are employed with intermediate vanes 44.



The extension paddles 74 are located in the closed or retracted position and the partially extended position.

The flexible hub 42 is preferably made of black, 1/2" thick neoprene rubber with a durometer reading of about 70, or other equivalent materials. The vanes are attached within the grooves by adhesive along their entire length so as to maintain adhesion strength when the hub is stretched around a golf club shaft. The plastic vanes and extender paddles may be in desired colors, by the transparent versions are preferred such that advertising and illustrative inserts may be placed between the vanes and seen by a prospective customer.

In a preferred version the slots are cut into the rubber hub about 3/8" deep and 3/32" wide, the rubber fingers between the slots being about 1/8" in thickness, the thickness of the outer fingers, i.e. the outer slots and the hub parallel walls preferably being about 1/4 inch to withstand the force applied when the hub is wrapped around the club shaft. The corners of the rubber hub and the vanes and extender paddles are preferably rounded off for a better appearance.

It is to be understood that the present invention is not limited to the embodiments described above, but encompasses any and all embodiments within the scope of the following claims.